

Interim White Nose Disease Management Plan

National Park Service, Sequoia and Kings Canyon National Parks

Final



A Myotis lucifugus with WNS.

Prepared by Joel Despain

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Background

White Nose Syndrome (WNS) is a bat disease first identified in New York State in 2006. It has spread rapidly since that time and caused high mortality (>90%) in many colonies of hibernating bats in caves and mines. Eight species have been impacted. By April of 2010 the disease had reached western Oklahoma and it is expected to continue to spread. The disease is associated with the fungus *Geomyces destructans* which is found growing on the bats. It remains unclear if the fungus is causal or symptomatic.

On September 7, 2010, the NPS Deputy Director of Operations issued a memorandum to regional directors instructing parks on WNS management including requirements to screen park cave visitors for clothing that has been in other caves, consideration for closing some NPS caves, requirements to protect uninfected locations as well as preventing the spread from infected sites and a deadline for all parks with caves to complete a WNS management plan. The memo also directs parks to provide WNS educational information to park visitors. In compliance with the September 7 memo this plan has been created. The existing Park Cave Management Plan is currently being updated and will contain provisions for WNS management, thus the interim nature of this plan.

This interim plan supersedes a memorandum signed by the park Superintendent in 2009. Under that memo all researchers and recreational cavers are not allowed to use any clothing or equipment in a park cave that was also worn in a cave in the 17-state USFWS area of concern for WNS established in 2009. The park memo did not stipulate any changes in the management of commercialized Crystal Cave. WNS has now spread far beyond this 17 state area.

Sequoia and Kings Canyon WNS Management

Sequoia and Kings Canyon National Parks are home to a diverse variety of bats (17 species – more than many entire states) including some species that are known to hibernate. People who are going to any park cave will be instructed to not wear clothing or bring any equipment (cameras, purses, packs, pads, food, etc) that has been inside of any other caves outside of the parks unless those items have been disinfected as per US Fish and Wildlife Service (USFWS) protocols. The URL for the decontamination procedures is <http://www.fws.gov/WhiteNoseSyndrome/cavers.html>. This web site explains the rationale for decontamination, presents other ideas for preventing the spread of WNS and is also updated based upon new research and new and improved decontamination techniques and methods. Note that a simple washing in a regular clothes washer is not adequate.

Hard surface items such as cameras may be disinfected with a disinfectant cloth that contains bleach, alcohol or quaternary ammonia. The only exception would be footwear for those attending Crystal Cave tours since footwear will be disinfected at the cave parking lot. People lacking alternative clothing will be asked to not visit any park cave until they have appropriate clothing.

There are seven user groups for park caves, all of which must be screened as per the Deputy Director's memo. WNS procedures for several of the groups are similar and are combined below. The seven user groups are:

1. Tour-takers at Crystal Cave;
2. Wild Cave tour-takers at Crystal Cave;
3. Cave researchers (including the Cave Research Foundation);
4. Recreational cavers on trips led by park-approved Trustees,
5. Cave Management Program VIPs working projects such as restorations, and
6. Trips by the park Cave Management Program staff,
7. Recreational cavers who are not a part of caving clubs and who visit caves spontaneously often with no contact with park staff.

Groups 1 through 5. Regular and Wild Tour Participants, Researchers, Recreational Cavers and NPS Volunteers: Communication and information from park staff to these cave user groups will include educational information on WNS. This includes WNS talking points on cave tours, WNS information on NPS and SNHA web pages, and the dissemination of WNS information during phone calls, emails and meetings between park staff and researchers and recreational cavers.

Groups 2 through 5. Wild Tour Participants, Researchers, Recreational Cavers and NPS Volunteers: Wild tour participants, researchers, recreational cavers, park staff and volunteers will be asked to sign an affidavit (see below) stating that they understand and will comply with park restrictions on clothing and equipment in park caves. The affidavit document has been developed by the parks and is based upon one in use at Mammoth Cave National Park. Wild Tour participant affidavits will be retained by SNHA, other user groups will submit their affidavits to the park Cave Specialist's Office in advance of all caving trips and cave activities.

Group 1. Tour-takers at Crystal Cave: Crystal Cave averages about 55,000 tour takers per year that must have their clothing screened. Initial screening will begin at ticket sales outlets for Crystal Cave, being the Foothills and Lodgepole Visitor Centers (VC). At both VCs crowding and space concerns, particularly during the busy summer months when Crystal Cave is open, are of primary importance. It will be very important to work closely with VC staff in implementing specific WNS screening procedures.

When visitors present their tour tickets to staff at the Crystal Cave booth before proceeding to the cave, they will be screened again and asked if any of their clothing or equipment has been in other caves. This may be done through individual conversations with visitors or as a general announcement to larger groups that are gathering to hike to the cave. More signs in this location about this issue and problem may be appropriate. Disinfection of hard surface items such as cameras with disinfectant wipes may take place at the cave parking lot. The park and SNHA would provide the wipes.

While it is possible to disinfect clothing that has been in caves for WNS and procedures for doing so have been adopted by the USFWS and the NPS, this is not practical for people arriving at the parks for a tour of Crystal Cave. Disinfection requires advance screening before people reach the parks and will be used for other user groups but not for cave tour participants.

For most commercial cave visitors their primary contact with a given cave will be with their feet. Thus a disinfection mat and bath, similar to what has been done at Mammoth Cave National Park (MACA), will be set up at the Crystal Cave booth adjacent to the parking lot for people to walk through going to and coming from the cave.

Disinfection will be via low concentrations of quaternary ammonia or other approved substance as per USFWS WNS disinfection protocols. Disinfection at this location will preclude large quantities of disinfectant from entering the cave itself and will be easier for staff to maintain and service.

Equipment and technology for this type of shoe disinfection is changing rapidly. Thus, the park will use whatever system is best for shoe decontamination based upon: 1) effectiveness of treatment; 2) ease and simplicity of use by park staff and visitors; 3) cost; 4) experiences with this varied equipment at other NPS sites; 5) environmental hazards from the shoe decontamination equipment and chemicals; 6) the health and safety of park staff and park visitors in relation to WNS equipment and chemicals.

While Crystal Cave is open to the public the park newspaper will contain an article and information on WNS and the parks attempts to manage it.

All Sequoia Natural History Association (SNHA) staff working at the cave in any capacity will be (and have been) directed to not bring caving clothing and equipment to the parks that has been in any cave outside of the parks, or if they are bringing equipment it must be decontaminated using the USFWS protocol as described above.

Group 2. Wild Cave Tour Participants: Approximately a dozen of these tours are held on summer evenings and involve six participants and two park (SNHA) staff persons. They last up to six hours and require crawling and climbing through off-trail sections of Crystal Cave. While the number of people on these tours is very small, the intimate contact between cave and visitor required during these trips makes the transmission of spores from infected clothing much more likely.

WNS screening for Wild Tour visitors will begin when reservations are made for these tours with SNHA. All Wild Tour visitors will be informed that they cannot wear clothing or bring any equipment for the Wild Tours that has been to any cave outside of the parks unless said item has been disinfected according to USFWS protocol. Or that such clothing must be disinfected using USFWS protocols before it is brought to Crystal Cave.

In addition, wild tour participants will be screened by tour staff at the Crystal Cave parking lot at the time of the tour and before entering Crystal Cave. Those with clothing that has been in other caves will be asked to change clothes.

The Wild Tour equipment is dedicated for use on Wild Tours at Crystal Cave only and would not be used in any other cave.

All Wild Tour participants must use SNHA Wild Tour equipment and may not bring along their own caving equipment such as lights, helmets, knee pads, etc.

Group 3. Cave Researchers (including the Cave Research Foundation): Cave visits by researchers are coordinated through the Park Cave Specialist's Office. All research permits approved for work in park caves will contain a statement on WNS, its management in the parks and requirements for cave entry, informing researchers in advance of the need for clothing that has not been in any other cave outside of the parks or that has been decontaminated. In addition researchers will be screened at the time of cave trips by staff in the Cave Specialist's Office. Those with inappropriate clothing will be asked to change or to not enter any park cave.

Group 4. Recreational Caves on trips led by park-approved Trustees: Recreational cave visits are coordinated through the parks Cave Specialist's Office. Dozens of recreational caving trips take place in the parks each year, mostly to Soldiers and Crystal caves. These trips are led by park approved trip leaders known as Trustees.

Group 5. Cave Management Program VIPs: Members of the Western Region of the National Speleological Society and the Western Cave Conservancy routinely volunteer their time for projects in park caves. Park cave program staff will screen all VIPs for possible WNS infected clothing before any VIPs enter any park caves.

Group 6. Park Cave Management Program Staff: Cave program staff maintain a dedicated cache of caving equipment and clothing that is only used within the parks to prevent the introduction and spread of WNS. This cache was developed in 2009 after earlier concerns about WNS in bats. This cache will be maintained and expanded as funding allows. Cave program staff recreate in caves not in the parks (including in the eastern US), therefore park staff are responsible for ensuring that there is no cross contamination between personal and park equipment.

Group 7. Recreational Caving without a Trustee: All recreational caving in the parks without a park-approved Trustee is to be banned since such users of caves cannot be screened effectively for clothing or other items that might contaminate the parks with WNS fungus.

Prepared by: Park Cave Specialist

Reviewed by: Physical Science Branch Chief

Recommended by: Chief, Resource Management and Science

Approved by: Park Superintendent

**Affidavit of Decontamination of Caving Equipment and Clothing for
Researchers, Cavers and Wild Tour Participants:**

I, _____, certify that I have read and understand Sequoia and Kings Canyon National Parks procedures for preventing the spread of White Nose Syndrome (WNS) and the parks White Nose Disease Management Plan. All clothing, footwear and gear I will be using during cave activities in the parks has:

- 1) Never been in a cave contaminated with WNS nor in a cave within a state which contains a cave with WNS.
- 2) Been decontaminated carefully and thoroughly using the Fish and Wildlife Service decontamination protocols for WNS.

Signature:

Date:

Proposed Superintendent's Compendium Text:

White Nose Disease Management in Park Caves

- Visitors to public tour caves will have their clothing and equipment screened for exposure to other cave environments that could have contained White Nose pathogens including other commercial caves. Screening will use public information and visitor questioning. Any potentially exposed clothing or equipment will not be allowed into park caves.
- Other cave users (researchers and recreational cavers) will sign an affidavit affirming: (1) That their equipment has **not** been in a cave or mine located in a State or Province of Canada known to have had an outbreak of White Nose Syndrome; or (2) that all equipment being used in SEKI caves and/or abandoned mines has been decontaminated using protocols approved by the US Fish and Wildlife Service.

Research Permit Text Currently in Use:

- Researchers must not use clothing or equipment that has been in caves or mines with white nose syndrome or in caves or mines in a state with white nose syndrome unless that clothing and equipment has been decontaminated following this use according to the U.S. Fish and Wildlife Service decontamination protocols.

Justification for this SEKI Compendium Requirement

- White Nose Syndrome (WNS) is an illness that affects hibernating bat colonies. With infection the bat mortality rate is 95 to 99% within three years.
- Forest bats and migrating (as opposed to hibernating) bats do not at this time appear to be affected by the disease.
- Since the disease was discovered in 2006, more than a million and possibly as many as three million bats have died in the US and Canada.
- WNS is associated with a fungus, *Geomyces destructans*, although at this time it is unclear whether the fungus is causal or symptomatic. The fungus creates white patches *on the animals' wings* and muzzle, thus the name, White Nose Syndrome.
- The disease first appeared in New York State in 2006 in Howe Cave--a commercial tour cave. Since then the disease has spread to more than 20 states and 5 Canadian provinces.
- The western-most state where WNS has been confirmed is Missouri, with a possible outbreak in 2010 in Oklahoma.
- Eight species of bats have been affected, two of which are federally listed species under the Endangered Species Act.
- How the disease spreads is unclear. Bat to bat transmission of the disease has been confirmed in laboratory setting and appears to happen often in the wild. There is anecdotal evidence of the spread of the disease by people.
- The severity of the disease varies at different sites and with different species. By far the worst impacted species is the Little Brown Bat, *Myotis lucifugus*, which is found within SEKI.
- State and Federal agencies and private organizations have responded to this rapidly spreading disease by closing caves to all access or imposing some sorts of restriction on caving activities.